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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
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ART UNIT	PAPER NUMBER
2614	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/583,388	GORDON ET AL.	
	Examiner	Art Unit	
	Johnny Ma	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Paper No. 8, filed 9/11/2003, with respect to the rejection(s)of claim(s) 1-6, and 8-9 under U.S.C. 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ludvig et al. (US 6,415,437) in further view of Ribas-Corbera et al. (US 2002/0122598).

Regarding claim 7, applicant argues "that a quantization matrix that better optimizes the display of text in an information grid is both novel and unobvious. Applicants ask the Examiner to provide a reference that teaches using a quantization matrix for such purpose." Note the Konstantinides et al. reference, which discloses a system for variable quantization in JPEG for compound documents, where "[u]nder variable quantization, the values of the original quantization matrix can be rescaled on small blocks of pixels as small as 8 pixels by 8 pixels. Normally the quantization matrix stays the same for the entire image, but the adjunct standard allows these changes on a block by block basis" (Konstantinides et al. [0041]). The Konstantinides et al. reference also discloses "[b]ased on the discrete cosine transform activity of a block or a macroblock (a 16x16 block), quantization scaling factors are derived that automatically adjust the quantization so that text blocks are compressed at higher quality than image blocks. Those skilled in the art would be aware that text is more sensitive to JPEG compression because of its sharp edges which, if compressed too greatly, would blur or have ringing artifacts (ripples around the edges). At the same time, images can be compressed greatly

without drastically affecting human-eye perceived differences in quality of the image" (Konstantinides et al. [0048]).

Regarding claim 9, applicant further argues "[h]owever well-known low-pass filtering is in the art of video encoding, the Applicants are claiming low-pass filtering as such: they are asserting an invention in which low-pass filtering is one claim component." In response to applicant's arguments against the references individually, please note, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Claim Rejections - 35 USC § 103

1. Claims 1-6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ludvig et al. (US 6,415,437) in further view of Ribas-Corbera et al. (US 2002/0122598).

As to claim 1, note the Ludvig et al. reference discloses a method and apparatus for combining video sequences with an interactive program guide where "the invention comprises a plurality of compositors that combine background information, advertising video and program guide graphics into a single sequence of video frames. The sequence is then digitally encoded to form an MPEG-like bit stream" (Ludvig et. al. 2:53-57). The claimed "encoding a non-blank background for the information section" is met by the disclosed digital mpeg encoding of the program guide graphics where "each graphic contains a set of programs (e.g., channels)" (Ludvig et al. 3:1-2). However, the Ludvig et al. reference does not specifically disclose skip encoding a blank background for the display section. Now note the Ribas-Cobera et al. reference, which discloses a method and apparatus for selecting image data to skip when encoding digital video

where "a block and frame skipping technique decides which image regions, blocks or frames in a video frame or series of frames should be skipped... Block skipping detects in advance which of the regions in a video frame will not produce any bits, so that the encoder can skip the encoding process for these blocks... All image blocks whose pixel energy is below the optimal threshold are skipped" (Ribas-Cobera et al. [0012]). Therefore, the examiner submits that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Ludvig et al. MPEG encoding with the Ribas-Cobera block skipping for the purpose of providing "more efficient bit rate control by not allocating bits to blocks or frames that should not be encoded" (Ribas-Cobera et al. [0014]).

As to claim 2, the claimed "where encoding the information section includes quantizing a transformed image using a quantizer step size that is relatively low so as to substantially maximize a bit rate allocated to the information section." Note, the Ludvig et al. reference discloses each encoder 204 encodes an IPG screen sequence to form a compressed video bitstream, e.g., an MPEG-2 compliant bitstream (Ludvig et al. 6:14-16), where quantization is inherent to the MPEG compression method. However, the Ludvig et al. reference does not specifically disclose using a quantizer stepsize that is relatively low so as to substantially maximize a bitrate allocated to the information section. Now note, the Ribas-Cobera et al. reference which discloses "[c]alculating bit allocation only with the remaining blocks increases the quality in the encoded image by not pre-allocating bits to blocks that will be discarded" (Ribas-Cobera et al. [0074]) where a relatively low quantizer step size is inherent to the improvement of image quality. Therefore, the examiner submits that it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the Ludvig

et al. MPEG encoding with the Ribas-Cobera calculating bit allocation only with the remaining blocks for the purpose of providing "more efficient bit rate control by not allocating bits to blocks or frames that should not be encoded" (Ribas-Cobera et al. [0014]) and the improvement of image quality (Ribas-Cobera et al. [0074]).

As to claim 3, the claimed "where the user interface comprises an interactive program guide, where the information section comprises a program grid section, and where the display section comprises a multimedia section" is met by "the IPG 500 contains a background 502, a plurality of video display regions 504, 506, and 508, and a program guide graphic 510" (Ludvig et al. 4:5-7).

As to claim 4, the claimed "where the non-blank background comprises a striped background" is met by the striped background grid as illustrated in Figures 5A-5C (Ludvig et al.).

As to claim 5, the claimed "where the user interface is encoded at a server for display at a client terminal" is met by "[t]o assist a subscriber (or other viewer) in selecting programming, the SPE 102 produces a interactive program guide (IPG) in accordance with the present invention" (Ludvig et al. 3:63-65) and "[t]he system 100 contains service provider equipment (SPE) 102 (e.g., a head end), a distribution network 104 (e.g., hybrid fiber-coax network) and subscriber equipment (SE) 106" (Ludvig et al. 3:38-41).

As to claim 6, the claimed where the server is located at a headend of a cable TV distribution system. Please see rejection of claim 5.

As to claim 9, note the Ludvig et al. reference discloses a method and apparatus for combining video sequences with an interactive program guide where the Ludvig et al. reference

in Figures 5A-5C illustrates an information section including background stripes and where there is no cross between two adjacent background stripes. The Ludvig et al. reference also discloses each encoder 204 encodes an IPG screen sequence to form a compressed video bitstream, e.g., an MPEG-2 compliant stream (Ludvig et al. 6:14-16). However, the Ludvig et al. reference does not disclose a means for compressing a video bitstream or the use of low-pass filtering to reduce visual defects. Now, note the Ribas-Corbera et al. reference which discloses a method and apparatus for selecting image data to skip when encoding digital video using macroblocks. The claimed "forward transforming a source image of the information section to generate a transformed image" is met by "[t]he pixel values of the block 14 are transformed in transform 16 into a set of coefficients, for example using a Discrete Cosine Transform (DCT)" (Ribas-Corbera et al. [0029]). The claimed quantizing to generate a quantized image and "encoding the quantized image to generate an encoded image of the information section" is met by "[t]he coefficients output from transform 16 are quantized in quantizer 18 according to a set of quantization values 22 and further encoded in coder 20" (Ribas-Corbera [0029]). Therefore, the examiner submits that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Ludvig et al. MPEG encoding with the Ribas-Cobera block skipping for the purpose of providing "more efficient bit rate control by not allocating bits to blocks or frames that should not be encoded" (Ribas-Cobera et al. [0014]). However, the Ludvig et al. reference is also silent as to the use of low-pass filtering. Nevertheless, the examiner gives Official Notice that it is notoriously well known in the art of video encoding to use low-pass filtering for the purpose of facilitating the separating of background information and graphics. Therefore, the examiner submits that it would have been obvious to one of

ordinary skill in the art at the time the invention was made to modify the Ludvig et al. electronic program guide transmission scheme with the Ludvig et al. encoding scheme and a low-pass filter for the purpose for the above stated advantages.

2. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ludvig et al. (US 6,415,437) in further view of Ribas-Corbera et al. (US 2002/0122598) and Barton et al. (US 2001/0017892).

As to claim 8, note the Ludvig et al. reference discloses a method and apparatus for combining video sequences with an interactive program guide. The claimed "information section" is met by "each encoder 204 encodes an IPG screen sequence to form a compressed video bitstream, e.g., an MPEG-2 compliant stream" (Ludvig et al. 6:14-16). The claimed "information section includes background stripes" is met by Figures 5A-5C which illustrate an information section including background stripes (Ludvig et al.). Note, the Ludvig et al. reference discloses encoding a MPEG-2 compliant stream. However, the Ludvig et al. reference does not specifically disclose the procedure in which this encoding is performed. Now note, the Ribas-Corbera et al. reference which discloses a method and apparatus for selecting image data to skip when encoding digital video. The claimed dividing into macroblocks is met by "[I]n block-based image coding, the image frame 11 to be encoded is decomposed into multiple image blocks 14 of the same size, typically of 16x16 pixels per block 14" (Ribas-Corbera [0029]). The claimed "generate a transformed image" is met by "[t]he pixel values of the block 14 are transformed in transform 16 into a set of coefficients" (Ribas-Corbera [0029]). The claimed "quantizing the transformed image to generate a quantized image and encoding the quantized image to generate an encoded image of each macroblock" is met by "[t]he coefficients output

from transform 16 are quantized in quantizer 18 according to a set of quantization values 22 and further encoded in coder 20" (Ribas-Corbera [0029]). Therefore, the examiner submits that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Ludvig et al. MPEG encoding with the Ribas-Cobera block skipping for the purpose of providing "more efficient bit rate control by not allocating bits to blocks or frames that should not be encoded" (Ribas-Cobera et al. [0014]). However, the Ludvig et al. and Ribas-Corbera combination does not specifically disclose "where the macroblocks do not cross any border between two adjacent background stripes." Now note, the Barton et al. reference which teaches "data encoding technique must survive various artifacts of video handling in the chain. A preferred embodiment of the invention places block-sized single color images in the frame 901 aligned to macroblock boundaries, in a checkerboard fashion" which is understood that macroblocks do not cross borders of the checkered pattern (Barton et al. [0056]). The Barton et al. reference also teaches "[s]quare blocks of a multiple of macroblock size are used such that a phase encoding is achieved which is easily detected during a single pass over the MPEG bitstream (Barton et al. [0017]). Therefore the examiner submits that it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the Ludvig et al. and Ribas-Corbera combination with the Barton et al. teaching of stripes that are a multiple of the macroblock size for the purpose of alleviating various artifacts in the encoding process.

1. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barret et al. (US 6,412,112) in further view of (Konstantinides et al. US 2002/0001412).

As to claim 7, the claimed forward transforming a source image of the information section to generate a transformed image; quantizing the transformed image to generate a

quantized image; and encoding the quantized image to generate an encoded image of the information section, where said quantizing involves using a quantization matrix adjusted to better optimize display of text in the information grid. The Barret et al. reference discloses a system for transmitting digital data through a lossy channel where the system involves selecting a set of digital data to be distributed, for instance, client terminal software updates or electronic programming guides, and converting the data to an intermediate format compatible with video broadcast (2:23-27). The Barret et al. reference also discloses after digitization of the video signal, a mathematical operation known as a discrete cosine transform (DCT) is carried out on each block of pixels to extract spatial frequency coefficients from the blocks (5:66-67; 6:1-3). Figure 5 of the Barret et al. reference illustrates quantizing the discrete cosine transform followed by encoding (see Figure 5). The Barrett et al. reference also discloses the output data of the DCT step, i.e. the 8x8 matrix of frequency component values, is indicated schematically between the DCT and Quantization blocks (6:15-17). However, the Barrett et al. reference does not specifically disclose a quantization matrix adjusted to better optimize display of text in the information grid. Now note the Konstantinides et al. reference, which discloses a system for variable quantization in JPEG for compound documents, where "[u]nder variable quantization, the values of the original quantization matrix can be rescaled on small blocks of pixels as small as 8 pixels by 8 pixels. Normally the quantization matrix stays the same for the entire image, but the adjunct standard allows these changes on a block by block basis" (Konstantinides et al. [0041]). The Konstantinides et al. reference also discloses "[b]ased on the discrete cosine transform activity of a block or a macroblock (a 16x16 block), quantization scaling factors are derived that automatically adjust the quantization so that text blocks are compressed at higher

quality than image blocks (Konstantinides et al. [0048]). Therefore, the examiner submits that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Barrett et al. quantization matrix for the purpose of improving text quality which is well known to be more affected by quantization effects.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johnny Ma whose telephone number is (703) 305-8099. The examiner can normally be reached on 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on (703) 305-4795. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-HELP.

jm

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